MODULE X.
CORRECTIVE ACTION

The RCRA Corrective Action Program (CAP) requires investigation and cleanup of releases of hazardous constituents and hazardous waste that pose an unacceptable threat at current and former RCRA hazardous waste treatment, storage, and disposal (TSD) facilities. The objectives of the RCRA CAP is to evaluate the nature and extent of the releases of hazardous waste constituents; to evaluate facility characteristics; and to identify, develop, and implement and appropriate corrective measure or measures to protect human health and environment.

X-A GENERAL CORRECTIVE ACTION REQUIREMENTS (40 CFR 264.100)

The Permittee is required to establish a corrective program under this subpart must, at a minimum, discharge the following responsibilities:

A-1 Ensure that regulated unit complies with the ground-water protection standard.

A-2 Implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place.

A-3 Begin corrective action within a reasonable time-period after the groundwater protection standard is exceeded.

A-4 Implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program.

A-5 Conduct a corrective action program to remove or treat in place any hazardous constituents that exceed concentration limits in groundwater:

A-6 The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied.

A-7 Corrective action measures under this paragraph may be terminated once the concentration of hazardous constituents is reduced to levels below their respective concentration limits.

A-8 Ensure that the groundwater protection standard is not exceeded.

A-9 Continue the corrective action for a long as necessary to achieve compliance with the groundwater protection standard.

X-B COMPONENTS OF CORRECTIVE ACTION PROGRAM

B-1 The following components are necessary to ensure a complete corrective action program and the detail in each of these steps will vary depending on the facility and its complexity.

a. Locate the source of contamination.

b. Determine the extent of contamination.

c. Determine actual and potential threats from the contamination to human health and the environment in both the short and long term.

d. Implement stabilization measures to control the source of contamination.

e. Evaluate the overall integrity of containment structures intended for long-term containment.

f. Monitor the performance of any interim or final corrective measure(s) to ensure that human health and the environment are being protected.

X-C RCRA CORRECTIVE ACTION PERMIT

C-1 In December 1990, EPA issued a RCRA corrective action permit (RCRA CAP) to the Permittee to conduct site cleanup. In 1997, the RCRA CAP was modified to incorporate interim measures to address areas of contamination. The following requirements of the RCRA CAP have been completed:

a. A RCRA Facility Investigation (RFI) of the North Inactive Site was conducted between January and June 1992 to determine if any areas warranted cleanup action.

b. A Verification Investigation (VI) for the South Inactive Site, Waste Water Treatment System, Drum Staging Area, #3 Sludge Pond, and BTEX Area.

c. Based on the recommendations in the VI, an RFI of the South Inactive Site, Waste Water Treatment System, #3 Sludge Pond, and the BTEX Area conducted in 1994

d. Interim measures were implemented at various Solid Waste Management Units (SWMUs).

X-D INTERIM MEASURES

D-1 All interim measures were completed after discussions with and approval from EPA.

a. North Inactive Site

i. Interim measures implemented during the summer and fall of 1992 consisted of construction to improve run-on/run-off control and minimize surface water infiltration.

ii. Ongoing periodic inspections.

iii. Construction of a 10-acre earthen cap with a minimum of 18 inches of compacted soil fill material sloped at 2% to 5%.

iv. A V-shaped diversion ditch lined with 18 inches of grouted riprap in potential high erosion areas was constructed along the east side of the North Inactive Site to intercept surface water from the wooded hillside on the east and divert it away from the disposal area.

v. Approximately 400 feet of Sugarcamp Run was upgraded to stabilize the bank and prevent erosion along the edge of the North Inactive Site. The upgrade consisted of widening and regrading the section to form a uniform trapezoidal channel that was lined with 18 inches of grouted riprap.

vi. New fencing was placed along the east, southeast, and northeast sections of the North Inactive Site.

vii. Semiannual inspections of the earthen cap, ditches, fencing, and the Sugarcamp Run stabilized banks to identify maintenance needs.

viii. Semiannual groundwater monitoring of the area around the North Inactive Site.

ix. A groundwater recovery well was installed in the center of the production area in June 1991 to remediate groundwater impacted by the management of acidic wastes on-site. In December 1991, the well began operation, pumping at 90 to 100 gallon per minute (gpm). The recovered water is sent to the WWTS's dewatering unit for use as spray water in the belt filterpress.

x. The results of a 1994 hydrogeologic study at the Facility indicated that the existing recovery well is adequate to intercept contaminants from the North Inactive Site and protect off-site receptors.

b. South Inactive Waste Site

i. Quarterly groundwater sampling of the five monitoring wells installed during the RFI was implemented pursuant to the 1997 CAP Modification. In addition, the earthen cover is inspected during monitoring events to identify potential erosion areas and maintenance needs.

c. WWTS

i. The two surface impoundments, although currently active, were identified as SWMUs because of suspected leakage through the primary liner. Therefore, daily monitoring of the leakage rate of the surface impoundments to determine if the monthly rate exceeded certain leakage rates was included in the CAP. Even though it was later determined that the suspected leakage was actually rainwater infiltration, this requirement of the CAP was not modified and monitoring continues.

ii. The UNOX™ Reactors are inspected every two years, the primary clarifiers are inspected annually, and the terminal manhole/neutralization pit and portions of the main process sewer are inspected every two or three years during plant wide electrical shutdown.

X-E SCOPE OF CORRECTIVE ACTION

E-1 Data for the Drum Storage Areas, Copper Shanty, and the sediments to Sugar Creek Run supports that no further investigation and/or remediation is warranted. Any constituents present were below action levels or appear to be naturally occurring.

E-2 The SWMUs covered by this corrective action are the North Inactive Site, South Inactive Site, Waste Water Treatment System, and the BTEX Area.

X-F PROPOSED CORRECTIVE MEASURES

F-1 The proposed correction action is to continue the operation of the current groundwater recovery system at the facility.

F-2 In addition, inspections and groundwater monitoring will continue on a routine schedule.

X-G FINAL REMEDY

G-1 The Final Decision was issued by the United States Environmental Protection Agency (EPA) under the authority of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA), 42 U.S.C. § 6901 et seq., and EPA regulations at 40 C.F.R. Parts 260-271 and Part 124.

G-2 Consistent with EPA's February 2003 document Final Guidance on Completion of Corrective Action Activities at RCRA Facilities (reference 68 FR 8757), EPA is making a determination of "Corrective Action Complete with Controls" for the MPM Silicones, LLC site. The guidance recommends that EPA make this determination where the full set of corrective measures has been implemented and all that remains is performance of required operation and maintenance and monitoring actions; and/or compliance with and maintenance of any institutional controls. The final remedy for the MPM Silicones site meets these objectives and is protective of human health and the environment.

G-3 The final remedy for the MPM Silicones site is as follows:

a. Site Wide

i. The surface water, sediments, and soils were addressed during past environmental investigations conducted at the Facility. These media were remediated as necessary through interim measures. As a result, no further action is proposed for surface water, sediment, and soil.

ii. Institutional controls are to be implemented at the entire Facility to prohibit the use of groundwater as a potable source, to protect the integrity of the remedy, and to prevent exposure to contaminants that are still present at the Facility. These institutional controls will remain in place until EPA or WVDEP has determined that the groundwater has been remediated to drinking water standards.

b. North Inactive Site

I. An earthen cap and a surface water diversion ditch were constructed to limit the amount of surface water runoff to Sugarcamp Run and to minimize transport of contaminants to groundwater. Institutional controls are to be implemented at the NORTH INACTIVE SITE to prevent disturbance of the earthen cap, to protect the integrity of the remedy, and to prevent exposure to contaminants that are still present at the Facility. These institutional controls will remain in place in perpetuity, and may include title notices and land use restrictions through easements and covenants.

II. Additionally, continued inspection of the NORTH INACTIVE SITE is proposed on the schedule provided below. Deficiencies will be corrected in a timely manner, depending on the nature of the problem. However, in no case will the correction take more than thirty days. If more than thirty days is needed, the Facility will contact WVDEP and outline a plan of action.

Inspection Schedule

Earthen Cover	Semiannually and after a heavy rainfall
Diversion Ditches	Semiannually and after a heavy rainfall
Sugarcamp Run Banks	Semiannually and after a heavy rainfall
Monitoring Wells	Each sampling event
Brush and Weed Control	Mow annually
Reseeding	As needed

III. A heavy rainfall is defined as 3" or more of rain accumulation in a 24-hour period.

IV. The monitoring wells NF-1 to NF-9 will be sampled semiannually. If no analytes are detected at concentrations greater than their respective MCL for four (4) consecutive events, the sampling frequency will be reduced to annually. If any analyte is detected at concentrations greater than its respective MCL, the sampling frequency will revert to semiannually.

1. The proposed analyte list is as follows:
   - Chlorobenzene
   - Benzene
   - Toluene
   - 1,1-Dichloroethane
   - Dichloroethylene (cis-1,2)
   - Dichloroethylene (trans-1,2)

c. South Inactive Waste Site

i. Continue monitoring the groundwater and the ground cover.

ii. The monitoring wells installed during the RFI (5701, 5702, 5703, 5704, and 5705) will be sampled quarterly. If no analytes are detected at concentrations greater than their respective MCL for four (4) consecutive quarters, the sampling frequency will be reduced to annually. If any analyte is detected at concentrations greater than its respective MCL, the sampling frequency will revert to quarterly.

1. The proposed analyte list is as follows:

   - Benzene
   - Acrylonitrile
   - Chlorobenzene
   - Methyl Chloride
   - Toluene
   - Ethylbenzene
   - Xylenes
   - 1,1-Dichloroethane
   - 1,2-Dichloroethane
   - 1,1,1-Trichloroethane
   - Dichloroethylene (cis-1,2)
   - Dichloroethylene (trans-1,2)

iii. MW-2701 will be added to the groundwater-sampling program for the SIS to monitor migration toward the Ohio River. If any of the above compounds is detected in MW-2701 above its respective MCL, MW-2701 will be resampled within 30 days. If any of the above constituents is still present in MW-2701 above its respective MCL, WVDEP will be notified within seven (7) days. The Ranney Wells No.3 and No.4 will capture the migrating groundwater to send it back to the process.

iv. If the Ranney Wells are permanently taken out of service, the Facility will notify WVDEP of the action no less than seven (7) days prior to shutdown and will submit to WVDEP, within 30 days of the shutdown, a plan that addresses the development of an alternative source control technique. Upon approval by WVDEP, the Facility will implement the alternative source control plan.

v. The cover over the existing disposal areas will be inspected on the same frequency as the groundwater sampling. Inspection will include checking for erosion damage and ponding. The location and severity of any noted erosion, along with the corrective action to be taken to address the erosion, will be recorded on an inspection form. Implementation of corrective actions will begin within 30 days of the inspection that documents erosion or ponding on the cover. Each case of erosion or ponding will be evaluated on an individual basis as to urgency and type of repair needed.

d. Waste Water Treatment System

i. The surveys and inspections of the main trunk of the process sewer and the concrete tanks have not identified major breaches or releases to date. Continuation of the current inspection frequency is proposed to ensure the WWTS remains structurally sound. Any deficiencies found will be repaired in a timely manner based on the severity of the problem, but will in no case exceed thirty days. If more than thirty days will be required to correct a problem, WVDEP will be notified as to the nature of the problem and the estimated time needed for repair.

Inspection Schedule

UNOX Reactors	Every 2 years
Primary Clarifiers	Annually
Terminal Manhole/ Neutralization Pit	During plant wide electrical shutdown
Process Sewer	During plant wide electrical shutdown in rotating 1000' sections

ii. In addition, the leak rate of the two surface impoundments will be monitored for the life of the unit per the following program. The CAP currently defines an action leakage rate at 20 gallons per day (gpd) and a rapid and extremely large leakage rate at 2,500 gpd. When the average daily leakage rate is equal to or greater than 20 gpd but less than 2,500 gpd to either of two leak collection sumps, the CAP requires that the Facility meet certain requirements, including, but not limited to, notifying EPA and the State, sampling, performing quality determination, and, if necessary, submitting a Response Action Plan for EPA's approval. These actions are also required when the average daily leakage rate is equal to or greater than 2,500 gpd; in these cases the Response Action Plan is always required under the terms of the CAP, and EPA may require that the Facility terminate the receipt of waste and empty the unit.

iii. The average daily leakage rate requirements of the CAP will be modified to a single action leakage rate of 750 gpd for each surface impoundment. The Facility will convert the weekly flow rate from the monitoring data to an average daily flow rate for each sump. The following Facility requirements are proposed:

1. The Facility will monitor for and record on a daily basis the presence of liquids in the leak detection system removal sump.

2. The Facility will analyze the daily monitoring data on a weekly basis to determine if the average leakage rate over the preceding one-month period exceeds the action leakage of 750 gpd to either of the two leak collection sumps of the surface impoundments.

3. When the average daily leakage rate is equal to or greater than 750 gpd, the Facility must:

   a. Within seven (7) days of making the determination, notify the WVDEP that the rate was exceeded.

   b. Immediately sample the leakage in the collection sump to determine its quality. Compare the leakage quality to health-based standards (MCLs, EPA Region III RBCs, and WVDEP Standards) and provide the results to WVDEP within thirty (30) days.

   c. Discuss with WVDEP whether waste receipt should cease or be curtailed,

whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed. If the concentration of hazardous constituents in the leakage exceeds the health-based standards, and WVDEP determines that a threat to human health and the environment exists, WVDEP may require termination of receipt of waste and emptying the unit.

d. Determine with WVDEP any other short-term and longer-term actions to be taken to mitigate or stop any leaks.

e. Within 30 days after the notification that the action leakage rate has been exceeded, submit to WVDEP information about the leak (e.g., the location, size, and cause of the leak), the results of the above analyses, and the results of the actions taken to date. Additionally, the Facility must, at that time, submit to WVDEP for their approval, a proposal for additional actions planned.

f. If the action leakage rate continues to exceed 750 gpd monthly thereafter, the Facility must submit a report summarizing the results of any remedial actions taken and a proposal for actions planned to the WVDEP for approval.

g. Within 30 days of approval of proposed actions by WVDEP, the Facility shall initiate implementation of those actions.

e. No. 3 Sludge Pond and BTEX Area

v. A Corrective Measures Survey and a Comprehensive Groundwater Study were conducted in 1994. The studies confirmed that the existing groundwater recovery well installed in 1991 effectively captures groundwater from the NORTH INACTIVE SITE, the No.3 Sludge Pond, and the BTEX Area. The proposed remedy is to continue operating the recovery well and monitor groundwater contaminants through routine sampling.

vi. Groundwater elevation data will be collected quarterly along with the river level. The groundwater flow direction will be evaluated yearly to verify that contaminants from the North Inactive Site, No.3 Sludge Pond, and BTEX Area are continuing to be captured by the recovery well (4315).

vii. MW-20 will be sampled quarterly for benzene, chlorobenzene, cis-1,2-Dichloroethylene, and trans-1,2-Dichloroethylene. If any of these compounds is detected in MW-20 above its respective MCL, MW-20 will be resampled. If any of the above constituents is still present in MW-20 above its respective MCL, MW-3203 will be added to the quarterly monitoring program for the same parameters as MW-20 and the pumping rate of the recovery well may be increased to extend the capture zone.

viii. Should any of the indicator parameters be detected in MW-3203 at levels above its respective MCL, the well will be re-sampled within 30 days. If the second sampling confirms the presence of any indicator parameter in this well above its respective MCL, WVDEP will be notified within seven (7) days. The Facility will submit to WVDEP, within 30 days of the sampling that confirms the presence of an indicator parameter above its MCL, a plan that addresses the development of an alternative source control technique. Upon approval by WVDEP, the Facility will implement the alternative source control plan.

X-H REPORTING

H-1 The Permittee will submit to the WVDEP bi-monthly corrective action updates, in letter format, detailing all corrective action activities during the two-month reporting period.

a. Each bi-monthly update must contain the following information:

1. brief introduction;
2. description of work completed during the reporting period;
3. summary of findings;
4. changes made during the reporting period;
5. problems encountered and actions taken to rectify problems;
6. changes in personnel; and,
7. projected work for the next reporting period,

H-2 The Permittee will submit to the WVDEP an annual corrective action report within thirty-days of the submittal of the sixth bi-monthly update, with the reporting period ending December 31st of a given year.

a. Each annual report must contain the following information:

1. Introduction;
2. description of all work completed during the year;
3. analytical data from the four quarterly ground water sampling events;
4. summary of all changes made during the year;
5. summary of all problems encountered during the year and actions taken to rectify problems;
6. projected work for the next year,

b. One copy of annual report will be to:

Talal Fathallah
Hazardous Waste Permitting Unit
WVDEP-DWWM
601 57th Street SE
Charleston, WV 25304

X- I QUALITY ASSURANCE

I-1 The Permittee shall ensure that laboratories used by the them for analyses perform such analyses according to the EPA methods included in "Test Methods for Evaluating Solid Waste" (SW-846, November 1986) or other methods deemed satisfactory to WVDEP. If methods other than EPA methods are to be used, the Permittee shall submit all analytical protocols to be used for analyses to the Director for approval at least thirty-calendar days prior to the commencement of analyses and shall obtain the Director's approval prior to the use of such analytical protocols.

I-2 The Permittee shall ensure that laboratories used by them for analyses participate in a quality assurance/quality control program equivalent to that, which is followed by EPA. As part of such program, and upon request by the Director, such laboratories shall perform analyses of the appropriate number of samples provided by the Director to demonstrate the quality of the analytical data.

I-3 Inform the Director at least fourteen (14) calendar days in advance regarding which laboratory will be used by the Permittee to conduct laboratory analyses and ensure that WVDEP personnel and WVDEP authorized representatives have reasonable access to the laboratories and personnel used for analyses.

X-J SAMPLING AND DATA DOCUMENT AVAILABILITY

J-1 The Permittee shall submit to the Director the results of all sampling and/or tests or other data generated by, or on behalf of, the Permittee in accordance with the requirement of the Permit.

J-2 The Permittee shall notify the WVDEP at least fourteen (14) calendar days in advance of any field activities, including but not limited to, well drilling, installation of equipment, or sampling. At the request of WVDEP, the Permittee shall provide or allow WVDEP or its authorized representative to take split or duplicate samples of all samples collected by the Permittee pursuant to this Permit. At the request of the Permittee, WVDEP shall provide the Permittee with a portion of each sample taken equal in volume or weight to the portion retained by WVDEP. Nothing in this Permit shall limit or otherwise affect WVDEP's authority to collect samples pursuant to applicable law, including, but not limited to, RCRA and CERCLA.

X-K ACCESS

K-1 The Permittee shall use its best efforts, as defined below, to obtain site access agreements from the present owner(s) and or lessees, as appropriate, of such property within four (4) weeks after receipt of notice of the Director's approval of any scope of work or work plan which require work on property which is not owned or controlled by the Permittee. "Best efforts" as used in this paragraph shall include at a minimum, but shall not be limited to, sending a certified letter to the present owners and/or lessees, as appropriate, of such property requesting access agreements to allow the Permittee and WVDEP and their authorized representatives to enter such property at all reasonable times.

K-2 In the event that access agreements are not obtained, the Permittee shall immediately notify the Director in writing indicating all efforts made to obtain such agreements.

X-L CORRECTIVE ACTION COMPLETE

L-1 At any time during the corrective action activities, the Permittee can submit documentation in support of corrective action complete in accordance with EPA's *Final Guidance on Completion of Corrective Action Activities at RCRA Facilities* (February 13, 2003).